

# Mikołaj Mieszko Charchuta

github.com/mmcharchuta | linkedin.com/in/mmcharchuta/  
| +48 730 359 228 | mmcharchuta@gmail.com | Poznań, Poland (open to remote, hybrid, relocation)

## EDUCATION

### AMU, POZNAN

#### MSc in Bioinformatics

Oct 2025 -- Jul 2027

Thesis: *In silico analysis of Cry9 toxins and their genetic determinants in the Bacillus thuringiensis pangenome* (first-author article in preparation).

### AMU, POZNAN

#### BSc in Bioinformatics & Biotechnology

Oct 2021 -- Sep 2025

Thesis: *Comparison of naïve methods for taxonomic classification of microorganisms using marker gene sequences* (created the NaïveR R package).

### CHARLES UNIVERSITY, PRAGUE

#### Erasmus+ Exchange

Winter 2022/23, Summer 2023/24

- Institute of Microbiology, Czech Academy of Sciences: *Profiling metabolism of complex microbial communities with Stable Isotope Probing and meta-omics*.
- Faculty of Natural Sciences, Charles University:

Applying CryoEM for studying the structures of cultivated meat proteins.

### UNIVERSITY OF GDANSK

#### National Exchange

Winter semester 2023/24

- Faculty of Biotechnology, UoG & Gdansk Medical University: *Metabolomics & proteomics of SynComs bioprotective against plant pathogens*.

- Faculty of Biology, UoG: *Genomes of phages infecting uropathogenic E. coli*.

## SKILLS

### PROGRAMMING

R • Bash • Python • C++

Git • Docker • AWS • Slurm • Nextflow

### BIOINFORMATICS

Transcriptomics (DESeq2, rMATS)

Genomics (samtools, GATK, Hi-C/3C-seq)

Metagenomics (QIIME2, mothur, NaïveR)

### THESIS SKILLS

R package development (NaïveR)

Taxonomic classification benchmarking

Pangenome analysis • Cry toxin gene

mining

### LANGUAGES

English (C2) • Polish (Native) • German

(B2)

## EXPERIENCE

### AMU MICROBIOLOGY DEPT. | Bioinformatician

Sep 2025 -- Present, 20% FTE | Poznań, PL

- Genomics of pests and biopesticidal microbes; predictive protein design.
- Hi-C/3C-seq analysis and workflow development.

### BENE MEAT TECHNOLOGIES | Bioinformatician

Mar 2024 -- Jul 2024 | Prague, CZ

- Transcriptomics and nanopore sequencing support.
- Bioreactor automation and production bioinformatics support.

### LEIDEN UNIVERSITY MEDICAL CENTER | Intern, Endocrinology Dept.

Jun 2023 -- Oct 2023 | Leiden, NL

- Bioinformatics support, data visualization, and pipeline creation.
- Co-authored publication in AJP (murine model work).

### MNM DIAGNOSTICS | Genome Analyst

Feb 2022 -- Jul 2022 | Poznań, PL

- Automation, WGBS (epigenomics) ML feature extraction, data-lake.
- Genome analysis interpretation. Cooperation with clinicians.

## PROJECTS

### TESTING DYNAMAP™ -- OPTICAL MAPPING & NANOPORE |

#### Bachelor Thesis Project (Team Lead)

Oct 2023 -- Oct 2025

- Student research grant; led team benchmarking microbiome profiling methods.
- Coordinated with Perseus Biomics - a startup specializing in rapid diagnostics - to test their DynaMAP™ technology for microbiome profiling, comparing it against established methods like 16S rRNA sequencing and shotgun metagenomics.

### SPUN -- ILLUMINA SEQUENCING | International Grant

Nov 2022 -- Apr 2024

- Predicted global biodiversity hotspots with ML.
- Field research video: [https://youtu.be/6frg\\_7ykXvc?t=128](https://youtu.be/6frg_7ykXvc?t=128).

## PUBLICATIONS

**In silico analysis of Cry9 toxins and their genetic determinants in the Bacillus thuringiensis pangenome**  
In preparation (expected 2026). Charchuta, M. M. (first), Baranek, J. (second), et al.

**Combination of dietary fiber and exercise training improves fat loss in mice but does not ameliorate MASLD more than exercise alone**

American Journal of Physiology-Gastrointestinal and Liver Physiology, 2025. Kovynev, A.; Charchuta, M. M.; et al.

**WED-517 Oatmeal a day does not keep the doctor away: inulin and exercise impact on MASLD amelioration and gut-liver crosstalk**

Journal of Hepatology, 2024. Kovynev, A.; Charchuta, M.; et al.